BLM's Strategies to Improve the Usefulness of its Information Assets
The Vision and Context For The Bureau's Architecture

As some of you have heard, the BLM is attempting to improve the value of our investments in information technology by better aligning BLM's technology with our business. The process we are using is to develop and use an enterprise architecture, which is known as the "Bureau's Architecture" (BA). (See also IM 2000-053, "The Bureau's Architecture: An Essential Key to Success," dated December 20, 1999 for more background information). The goals of this process are to:

- provide convenient access to information and services, both internal and external;
- deliver timely and effective responses and services to customer requirements;
- guarantee a reliable communication and computer infrastructure
- effectively manage BLM information/knowledge assets;
- effectively manage BLM technology assets; and
- effectively support BLM people (human resource assets).

The following document presents a discussion of some strategic changes in direction and emphasis that BLM must plan for over the next five years.

The decade of the 1990's was a transition from the "Industrial Age" of the 20th century to the "Information Age" of the 21st century. The keystone of success in the Information Age is the ability to add value to outputs by being able to quickly transform data and records into useful information, and make that information widely accessible.

Major Trends and Environmental Drivers

The dawn of the Information Age has forced organizations to examine the relationships between their work processes, data, and the information they provide, and determine what value they can add in transforming data into information. Transforming business data into meaningful, accessible information for decision-makers is one of the most important hallmarks of an organization that has successfully weathered the transition.

Two of the hallmarks of the Information Age are: the universal access to information and 'information velocity.' Many businesses have realized what makes customers choose one company over another is speed and accessibility of their information (being able to get information at any time, 24-hours a day, 7 days a week). Customers are simply seeking the best information possible in the fastest possible time.

Therefore, organizations that have successfully made the transition to the 21st century—do not conduct business either internally with their employees nor externally with their customers in the same way now than they did before. In the private sector, these trends are being addressed by developing new and/or modified business processes and innovative uses of technology, as organizations recognize that information and services and the speed with which they are delivered are indeed an asset, as well as being able to rapidly adapt to changing business needs. These entities also recognize that they must provide universal electronic access to their business information at such times as their customers need it.

However, BLM's past information management efforts have not addressed the long-term transitional issues described above. It is clear that we now face the same issues that the private sector is addressing. Based on our surveys, our customers expect:

- universal access to information to a degree never before provided by BLM;

- more timely processing of requests; and,
- that access costs will decline as innovative uses of information drive new/modified business processes.

Our employees expect:
- the same quality of services that they obtain from the private sector
- tools to be provided to help them address an ever-increasing workload–both in terms of volume and complexity, and
- access to the data resources of other Federal agencies and other partners.

And, we are recognizing that BLM's information is an asset to be managed for the benefit of all.

The Future Needs

The following are the key factors in adding value to the public's investment for BLM:
- transforming BLM Data and Records into useful Information Products,
- providing universal, around-the-clock public access to BLM information, and
  providing channels of doing business with BLM electronically ("E-Government").

As we cope with demands in the Information Age over the next 5 years, BLM expects that:
- ❹ our customer base will be broader (both in expertise and location) and more complex,
- ❹ we will have no greater, and possibly fewer, financial resources coupled with higher customer expectations,
- ❹ there will be an increased emphasis on public access to data and services electronically,
- ❹ there will continue to be emphasis on "e-government" efforts at the Federal level,
- ❹ knowledge needed to serve customers will often reside outside the BLM in partners,
- ❹ expertise will be widely distributed, both organizationally and geographically,
- ❹ a retiring workforce represents a potential loss of existing information and knowledge, and
- ❹ a retiring workforce, and its knowledge, will be difficult to replace.

BLM's Current Information Issues

BLM collects, analyzes, and records a tremendous amount of business information about the public lands and resources —ranging from land title to recreational usage to wildlife habitat. This data/information is used to make thousands of business decisions each year. We recognize that this business information is of great utility and value to a wide variety of other parties, including public land users; educational institutions; countless public interest groups; other Federal, State, Tribal, and local agencies; and the scientific community.

Adding Value to Data to Create Information and Knowledge

Figure 1 illustrates how successful organizations now add value to information. The successful organization collects its business data and adds relevance to the data to transform it into information. Information is then analyzed to produce knowledge which is then used for decision-making leading to actions. Once accountability is assigned to actions, outcomes are generated by the organization. It is clear that those organizations that view information as a major asset do add substantive value at each step of this process.

"Information velocity"

"Information velocity" is a new term of the Information Age. In the late Industrial Age (1970's and 1980's), business cycle times were on the order of 7 years. In the late 1990's and into the 21st Century, cycle times for information change are expected to be on the order of 12-18 months. Clearly, the speed of change is accelerating. Information velocity is a measure of how fast data is collected, transformed from data into information, processed by the organization, and action is taken to make results available to the public. Information velocity and universal access will be increasingly important factors over the next 5 years.

Figure 1. Value Added Chain for Data in the Information Age
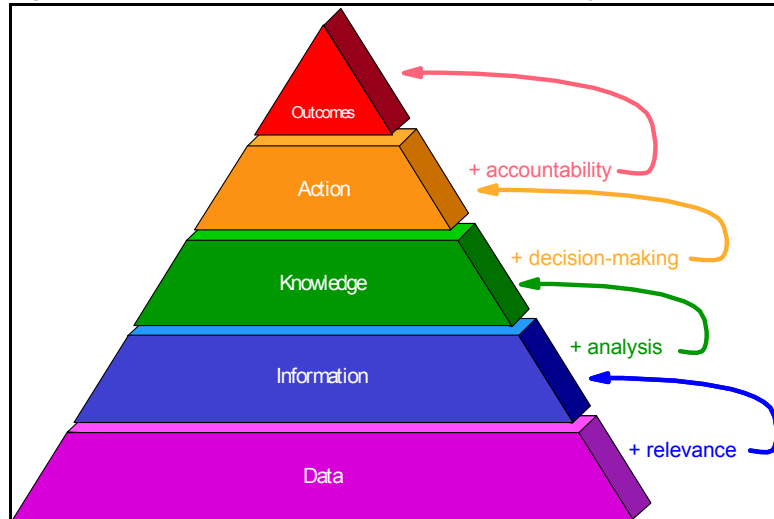
Transforming Data into Useful Information

To assure success in the Information Age we must manage data in a structured way. Data must be collected to a common standard in order to be reliable, current, and relevant. These attributes are the key to sharing, linking, and ultimately, integrating data and information from various sources to gain knowledge needed to address issues facing the organization. In the governmental sector, this enables BLM to:
•   form partnerships to obtain and exchange basic information among agencies at all levels, and with other knowledgeable parties (which will reduce costs of repetitive data collection),
•   provide information to the public to indicate where and how the agency is achieving its mission (the public's 'right-to-know'), and
•   collaboratively find and implement creative, lasting, supportable, solutions to pressing public issues.

However, a barrier exists to effectively achieve the goals described above. We collect identical data to different standards because:
•   few nationwide BLM data standards have been established and followed;
•   the more than 50-year evolution of BLM's legislative mandates and programs, built on top of the additional 150-year history of its predecessor agencies, such as the General Land Office, caused great variation in the data collected over time;
•   data has historically not been viewed data as a fundamental corporate asset of BLM;

- data collection and management have traditionally been a local, field decision; and
- prior to 2000, an enterprise-wide analysis of work processes and information flows had never been done.

Universal Public Access to BLM Information/"E-Government" for BLM

To meet these expectations, BLM must provide a significantly higher degree of public access to our data and services. These issues are not restricted only to BLM. In fact, the *Government Paperwork Elimination Act of 1999* requires that: "...commencing not later than five years after the date of enactment of this Act, Executive agencies provide—(1) for the option of the electronic maintenance, submission, or disclosure of information, when practicable as a substitute for paper; and (2) for the use and acceptance of electronic signatures, when practicable."

In addition, to address increased "information velocity" and meet legislative mandates, BLM must provide more of its services electronically. The rise of the internet and World Wide Web has seen demand for providing electronic information and services skyrocket. BLM is not exempt from that demand. In fact, the legislation previously referenced, requires all Federal agencies to meet that demand electronically by the end of 2003. It is clear that given limitations on funding, we must collect, manage, and make available as much of our information as possible electronically, and provide services electronically whenever practical.

In this arena, BLM must address the following questions:
- How much and what kind of data will be available electronically?
- What actions and to what degree will resources be made available to make this data accessible?
- What actions will BLM take to make its services available electronically?

BLM Business Architecture

To make a successful long-term transition into the 'Information Age' while over the short term assuring that we continue to work smarter, more efficiently, and meet changing expectations, the BLM has embarked on a comprehensive review of its business processes. Previously, BLM has not done this kind of in-depth analysis. Historically, each BLM program has grown vertically with little outward-looking review of the specific program for commonalities which can lead to overall efficiencies by reducing redundancies—both in the actual work and information, and this is rooted deep in BLM's culture.

The overall name assigned to this effort is the "Bureau Business Architecture." The first step in building the Bureau Business Architecture was to develop a model of the BLM's various business processes, building on BLM's initial strategic goals to improve the way that BLM does business.

BLM's Business Process Model

In the course of developing its initial strategic plan and cost management system, BLM identified nine horizontal, cross-cutting business processes that describe all of the BLM's work at the highest level. These processes represent the major functional categories that are the means to accomplish the BLM's strategic and mission goals.

The nine high-level work processes and a brief definition of each are as follows:

1.0   *Provide Customer Service*: This work process provides information and responses to customers and provides services to recreational visitors using the public lands, environmental education and interpretation, maps, and brochures as well as interactions with advisory committees and local governments on social, economic, and environmental needs.

2.0   *Assess Condition/Status*: This work process provides for the compilation, collection, analysis, and interpretation of basic land ownership, natural resources, social, and economic information used to describe existing conditions and trends affecting the public lands and resources, including establishing the boundaries of the public lands and maintaining the records of public land ownership and use.

3.0   *Perform Planning*: This work process provides for the preparation, revision, publication, evaluation, and modification of broad-scale BLM management plans and plan decisions which establish resource condition objectives and land-use allocations, including NEPA analysis and preparation of NEPA documents.

4.0   *Authorize Use*: This work process provides for issuing licenses, permits, leases, rights-of-way, use agreements, and other authorizations to use public lands and resources, including the development of stipulations, terms, and conditions to support such use authorizations.

5.0   *Implement BLM-initiated Actions*: This work process provides for on-the-ground resource project development and maintenance, land treatment applications, and other public lands actions to carry out management decisions such as land exchanges and disposals, including the *Alaskan National Interest Lands Conservation Act* and *Alaskan Native Claims Settlement Act*. Also it includes fire suppression and fuels management actions, wild horse and burro round-ups and adoptions, and hazardous materials site and abandoned mine land cleanups.

6.0   *Perform Monitoring*: This work process provides verification of whether specific management decisions are being implemented and if specific management objectives are being achieved through the comparison of conditions over time. It also includes the analysis and interpretation of monitoring data and information.

7.0   *Manage Compliance*: This work process provides for ensuring compliance with, and enforcement of, regulatory requirements for both authorized uses and unauthorized activities on the public lands. The work involves inspection and enforcement of stipulations, terms, and conditions required as part of use authorizations. Enforcement efforts may involve administrative, civil, or criminal actions if findings involve violations of federal laws or regulations.

8.0   *Manage Work*: This work process provides the broad management and planning of mission performance and goal accomplishment. It includes setting work goals and priorities, establishing and providing program guidance, planning and requesting program resources, workforce supervision, work accomplishment monitoring, performance measurement, and performance evaluation. This process is scalable at any necessary level including national, regional, local and landscape levels..

9.0   *Sustaining The Organization*: This work process provides for the internal management functions that support the overall BLM organization and which cannot be tied to specific mission functions or program outputs. Examples of these functions include budgeting, human resources, executive direction, property, space, vehicles, and utilities management.

Note that the above nine processes do not correspond to the BLM's organization chart. Grouping processes in this way permits the BLM to identify functions shared across organizational boundaries, where economies of scale may be possible. The groupings help to indicate where further business process re-design and detailed task analysis could identify business improvements, and where additional efficiencies may be possible. Management is making investments now so that the agency will work better in the future.

Each high-level process is further broken down into specific sub-processes and steps, each of which have their own discreet inputs and produce specific outputs. The inputs, outputs, and the work effort devoted to each sub-process and step are generally quantifiable and measurable, except for the general management work process.

Strategies to Implement the Bureau Architecture (BA)

In early 2000, the BLM completed Version 1.0 of its Bureau Architecture (BA), as an initial business-driven, enterprise architecture to meet its future business and technology needs. The BA provides a strategic management asset that defines both the BLM's major business processes and the information requirements needed to conduct its business. The BA identifies the current and desired future business processes, data, and information technologies needed to support the business, as well as transitional steps to implement new technologies in response to changing business needs.

The initial BA included many recommendations concerning further work needed to achieve the future desired architecture. These recommendations were grouped into several over-arching strategies which serve as strategic objectives for the future (the objectives for each strategy are also included) are as follows:

- *Facilitating the Accomplishment of BLM Work in the Field—Delivery of Information Directly to the Program Specialist/Decision-maker/Public:* to re-focus the development, acquisition, and deployment of assets within the BLM to delivering the information and tools needed by each employee (or member of the public) "on the firing line," in the field or in the office to conduct the BLM's work in the most efficient, effective and productive manner possible.

- *Improving the Utility of BLM Business Processes and Information*: to deliver tangible, useful products to the BLM employees so they can do their jobs better. The first area likely to be addressed is that of core data needed to facilitate preparation of new BLM land use plans, and their subsequent implementation.

- *Management of BLM's Information Resource is Part of BLM's Real Work—Establishing Accountability, Responsibility, and Authority*: to establish the principle that management of the highly valuable information resource assets that BLM has are an inherent part of every manager's and employee's "real" job in each program or function of the BLM; and to establish clear roles, responsibilities, accountability, and authority for doing this job. The information management responsibility includes the work processes, systems and applications, databases, data sets, spatial coverages, skills, training, staffing, and infrastructure management components of the BA,

- *Assuring and Storing High-Quality Program Information—Structured Data Administration and Management*: to consistently apply accepted business data standards and management. The value of the BLM's information assets are enhanced by improving their reliability, accuracy, utility, and accessibility for the widest possible use through better data management.

- *Providing the Solid Foundation on Which All Technology Works—Infrastructure, Network and Security*: to establish a cost effective, technical infrastructure environment that satisfies a wide range of objectives relating to security and accessability for BLM information. There is a clear need to substantially reduce the overall expense currently being incurred for network and security management, while simultaneously improving the overall security environment and meeting requirements such as FOIA, the Privacy Act, Paperwork Reduction Act, etc. Also, BLM's major

technology components need to be managed as corporate assets. The technology infrastructure should move as much functionality as possible towards Internet/Web-based information delivery mechanisms, facilitating E-Business, and the overall BLM network should be re-configured to improve infrastructure efficiency, security and contingency/business continuity, particularly for mission critical applications.

- *BLM's Management Information System (MIS)*. The MIS obtains mission-critical management information from a variety of sources and distributes it over the BLM Intranet to provide BLM managers and staff with financial, cost, program performance, customer satisfaction, workforce, and employee survey data. Data can be retrieved and compared by local offices, which enhances managers' ability to use this important information for decision making. Another business need identified is to expand the coverage of the MIS data warehouse to include the full suite of program management and performance data including that which is now maintained in separate, stand-alone applications

- Data automation, computer applications, and technology infrastructure all must be focused on supporting the BLM's business processes efficiently. Because of this mission focus, emphasis will be placed on modeling the BLM's business processes in detail as a foundation for decisions on selecting information technology options.

Long-Term Goal 1: Have standardized automated information delivery and data analysis capability on all BLM field desk-tops and un-tethered devices to increase efficiency, deliver user-transparent information management, and provide better service to our customers, including delivery of useful information to the public.

Goal Description: To deliver the information and tools needed by each employee "on the firing line," in the field or in the office to conduct the BLM's work in the most efficient, effective and productive manner possible, which includes providing universal public access to BLM information.. In addition, to prototype this process BLM will address a real-time, substantive issue that is facing BLM, namely updating the base of plans through defining and displaying the data that is required for land use planning.

Strategies to achieve this goal
- Determine what the various categories of BLM employees need for "on the screen" access to information and tools for finding, displaying, analyzing, maintaining, and reporting information, especially for field operations.
- Develop a base set of end-user requirements, to be provided universally, or nearly universally, and additional types of interface capabilities that are required by major categories of BLM employees.
- Make initial determinations of what capabilities should be further customized to business processes, and in what priority order.
- Initiate modeling of the coverages, databases, applications, and technologies necessary to support the objective of providing readily accessible and reliable data on the BLM employees desktop and other computer screens.
- Seek active support from all levels of BLM management for achieving this vision, and plan the staging of individual projects to advance the BLM step-by-step toward it.
- Review previous large-scale plan development efforts that used automated processes and technologies to produce guidance for other planning projects on methods and tools that are most effective.
- Perform more detailed business process modeling and data modeling for the Business Process Areas of: Land Use Planning and Land Status/Resource Condition Determination, starting from

the reference point of the process models of the Initial Bureau Architecture, and identify the best strategies for applying technology tools to them.

- Put in place policies to ensure that maximum feasible progress toward the vision of providing accessible electronic plans is made in the ordinary course of the planning.
- Define stages in plan automation that provide for an immediate start on creating reusable and accessible planning data, followed by progressive, modular movement toward a new vision. Prioritize according to the priorities of the planners to meet their FY 2001 challenge.
- Strive to implement the goal of universal access to the geospatial information and tabular information relating to a location or issue.
- Establish a strategy to acquire the necessary geospatial data, in the form of fixed coverages of mission critical data across the landscape, that are already available from sources outside of the BLM.
- Develop a long-term strategy to transition the static planning and assessment data into an Enterprise Geographic Information System (GIS) that is composed of corporate coverages that represent standard data that is maintained in the field but accessible to all, for implementation of the resulting plans.
- Determine the specific technical architecture that will most efficiently support the future vision.

Key factors affecting goal achievement
- Recognition of the fact that management of the BLM's information assets are an inherent part of every BLM manager's and employee's real job in each program or function.
- Establish the Clear roles, responsibilities, accountability, and authority for doing this job, which do not yet exist in BLM. This includes the work processes, systems and applications, databases, data sets, spatial coverages, skills, training, staffing, and infrastructure management components.
- Obtaining and allocating the necessary financial resources to accomplish this goal, including the technological infrastructure to support information delivery.
- Designing, acquiring and providing the appropriate technical information architecture and network capacity to achieve this goal.

Crosscutting relationships to other bureaus and agencies
- In the planning process, BLM provides and receives data from a wide variety of Federal, Tribal, State, Regional, and Local governments and agencies. For example, wildlife population data is received from State Fish and Game departments, grazing data is received from the US Forest Service, water quality data from state agencies delegated by the US Environmental Protection Agency, etc. It would be difficult to quantify an exact number, but the number of Federal and State agencies easily exceed 200 on a Bureau-wide basis.

Baseline Statistics: Currently, the BLM has over 20 nationwide automated systems that address specific business needs. None of these systems have a common interface, exchange data nor use spatial data in display. In addition, BLM's technical infrastructure is in need of refreshment in order to process the expected transmission of large volumes of data. User satisfaction with the majority of these systems is only moderate.

Long-Term Goal 2: Provide core BLM business data themes electronically to the public and private sectors, other Federal agencies, State, Tribal and local governments by improving the compatibility and accuracy of BLM's data through additional partnerships for data collection, management, and maintenance.
Goal Description: To simplify the exchange and retrieval of information with the public and among diverse organizations in order to increase the effectiveness of conducting the BLM's business. As the complexities of managing across the western landscapes increase, data collection and analysis becomes

even more vital to managing the land. The BLM's information about the public lands (for example, land ownership, status, and condition) is of great interest to a wide variety of parties, including public land users; other Federal, State, Tribal, and local agencies; the scientific community and the private sector.

Strategies to achieve this goal
- Implement scientific information technologies to improve compatible data production and maintenance.
- To simplify the exchange and retrieval of information among diverse organizations, data standards must be developed and agreed to among the participants, and followed.
- Integrate the production and maintenance of data into each employee's normal day-to-day work processes.
- Adopt, promote, and develop standard tools, processes, and data standards to allow us to pool digital data sets across government agencies.
- Enhance communications regarding geospatial activities across government agencies and between all land management disciplines.
- Expand partnerships with other Federal agencies as well as county and local government organizations.
- Develop or acquire applications and supporting information technology that efficiently and cost effectively meet the needs of exchanging data with our customers and partners.

Key factors affecting goal achievement
- ❹ Achieving the long-term goal is also based upon having funding available for purchasing advanced information technologies.
- ❹ The technical capabilities such as identified in the National Integrated Lands System (NILS) project are needed to meet the goal.
- ❹ Quality control will be necessary to ensure that BLM's data and information are reliable and current.
- ❹ The public and federal employees must visit multiple sites, both physically and electronically, to gather BLM data sets as well as other sources of data.

Crosscutting relationships to other bureaus and agencies
The BLM, other Federal land managing agencies, Tribal governments, State agencies, and counties provide funding and partnership resources to obtain Federal and Tribal land boundaries and collect integrated geographic coordinate data base (GCDB) data, as well as to obtain other commonly needed land management data sets.
- ❹ The BLM, Forest Service, and a consortium of counties are cooperating to integrate cadastral data and derive common data solutions so they can collectively address ecosystem management, NEPA, and urbanization in the West.
- ❹ The BLM, through the Interagency Cadastral Coordination Committee (ICCC), coordinates budget and workloads for cadastral surveys and digital portrayal of the parcel layer across Federal government and Tribal agencies.
- ❹ Increasing the effectiveness of conducting the BLM's business will require data sharing and cooperative data collection and use with all of our partners. Continued participation in cross-cutting coordination efforts which are occurring at all levels of government and business (such as the Federal Geographic Data Committee and liaison with organizations such as the Western Governor's Association and the National Association of Counties) is imperative to successfully achieving this goal.

Baseline Statistics: The BLM has data-sharing agreements with over 125 counties and more than 30 State and Federal organizations The BLM works with multiple partners at all levels of the agency to

conduct the business of land management. It is impossible to quantify all the types of information we must share, but for example, there are 31,625 townships to be collected in the Geographic Coordinate Data Base (GCDB).

Long-Term Goal. 3: Determine what data needs are to be maintained on a corporate basis for standard BLM decision making, and establish Corporate data stores to meet these needs.

Goal Description: To identify the "corporate core" data that every field office needs to collect and manage in order to maintain the BLM's corporate data coverage.

One of the pointers to determining what data is corporate would be to examine the new draft planning guidance in which a list of decisions that each plan must address are described. Once the decisions are agreed to, the supporting information can be identified. In that document, fall into 4 broad categories
• Natural, Biological and Cultural Resources,
• Resource Uses,
• Special Designations, and
• Support.
Natural, Biological and Cultural Resources information include data on such things as air quality, soil and water conditions and the location of cultural properties. Resource Uses refers to, for example, information on areas available for grazing, recreation or mineral development. Special Designations is information on areas given special land designations by Congress, and those given administrative designations Support is a category of information on things such as necessary access development, realty actions, etc.

Strategies to achieve this goal
• Conduct a BLM-wide review of the types of information gathered for the purposes of planning and decision-making;
• Determine those types of information most commonly used by the majority of the BLM offices to be designated as "corporate themes";
• Establish a priority ranking of the corporate themes, by usage (recognizing that it may be cost-prohibitive to attempt to gather and maintain all corporate themes);
• Develop data standards, if not existing, with attention to established standards used by our partners in state and local government, and the private sector;
• Assign responsibility for maintaining priority corporate themes;
• Undertake a phased approach to BLM office adoption of data standards;.
• Incorporate the use of advanced technologies, i.e., GPS and related technology, in the day-to-day business processes of the BLM to improve data management and use efficiencies;
• Acquire and upgrade the information technology infrastructure to store, manage and exchange all data sets required for land management;
• Develop electronic databases and data stores that are not integral to the automated applications that use the data.
Key factors affecting goal achievement
• Field office managers ultimately set data collection priorities, because the field:
  • can't afford for employees to collect 'everything'
  • can't afford to do a high degree of information management
  • needs to balance effort between 'need-to-know' and accomplishing workloads.
• Any selection of corporate data must also meet local needs, otherwise there will be a continuing conflict between the Bureau-wide needs and the needs of the specific office. Find a balance between what are required Bureau-wide coverages for field offices versus what each respective office would like to know at either end of the spectrum.

- Every office and every decision-maker will be affected and it will be necessary to look to the future for the incentive to push forward. The selection of corporate data sets must be conducted from the field upwards as well as from the headquarters downwards.
- Designing, acquiring and providing the appropriate technical information architecture and data storage capacity to achieve this goal.
- The acquisition and maintenance of corporate data can only be successful if given the full support of BLM management at every level of the organization.

Crosscutting relationships to other bureaus and agencies
Many of the data entities upon which the BLM depends are generated by other agencies, states, counties, tribes, and private entities. Many of these organizations have active data collection efforts already underway and have established data standards for their own use and for the use of their partners. It is imperative that the BLM work with these entities in order not to preclude their data or add an additional burden to their use of BLM-generated data and information.

Baseline Statistics: No statistics currently exist about the actual volumes of data collected by BLM. However in 1999, it is estimated that the BLM spent at least 9 per cent of its main appropriation in data collection. For various historical reasons, there has never been a Bureau-wide analysis of what data is required to be collected by each field office in order to address those common issues and questions that must be answered Bureau-wide. Clearly, every dollar saved by eliminating redundant data gathering and maintenance can serve a more useful purpose in supporting field operations.

Long-Term Goal 4: By end of 2003, provide services electronically to conform to the GPEA of 1999. By 2004, triple the number of business lines conducted by E-Government means with the public, Tribes, and other agencies in a timely and cost-effective manner.

Goal Description: To provide a significantly higher degree of public access to BLM information and services. The rise of the internet and World Wide Web has seen demand for providing electronic information and services skyrocket. Traditionally, BLM has provided these services and information in paper form, either in person at our Public Rooms or remotely via regular mail. On the ground, information and services are provided in the form of brochures, maps, signs and survey corner monuments.

The *Government Paperwork Elimination Act of 1999* requires that: "...commencing not later than five years after the date of enactment of this Act, Executive agencies provide—(1) for the option of the electronic maintenance, submission, or disclosure of information, when practicable as a substitute for paper; and (2) for the use and acceptance of electronic signatures, when practicable". It is clear that given limitations on funding, we must collect, manage, and make available as much of our information as possible electronically, and provide services electronically whenever practical.

Strategies to achieve this goal
- Complete business process analysis both internally and with our customers to determine what, why, and how information and services should be made available to our customers and other members of the public.
- Implement comprehensive data management that establishes clear authority and responsibility, adopts meaningful standards, monitors and improves data quality, and meets the business needs of BLM and our customers.
- Develop or acquire applications and supporting technology that efficiently and cost effectively meet the needs of BLM and our customers and establish easy to use portals for customer access to BLM information and services.
- Increase the level of on-the-ground information (such as corner monuments and signs) to help relate BLM's information to accurate on-the-ground locations.

- In planning for a successful transition to providing information and services electronically, BLM must address the following questions
  - What kind of information should be publically available?
  - How should that information be made available?
  - What services should be available electronically?
  - What are the actions and resources needed to meet these goals?
  - What are the priorities of these goals?
  - What resources will be devoted to these goals?

Key factors affecting goal achievement
- Availability of time and knowledgeable staff to do the business process analysis that defines the business needs of BLM and our customers, including priorities of those needs.
- Establishing clear roles, responsibilities, accountability, and authority for accomplishing the task.
- Availability of financial resources to accomplish this goal, including the necessary technological infrastructure to support information delivery.
- While it is essential to provide accurate and identifiable survey monuments as well as understandable and useful signs in the field, and while recognizing that a demand for maps and other paper-based information will always exist, BLM must ensure that these accurately match our electronic information.

Crosscutting relationships to other bureaus and agencies
BLM is both a customer for and supplier to numerous Federal, Tribal, State, and local governments for information and services. In addition relationships exist with other land managing units of government (at all levels), such as managers of adjacent or nearby lands and resources.

Baseline Statistics: BLM has taken initial steps to gain experience in these areas. The increasing number of users to both BLM's information web sites and 'service delivery' web sites clearly indicate that there is a significant demand for electronic delivery of BLM information and services.

- BLM has existing web sites for general public information. which had about 6.6 million visitors over the past 2 years.
- *General Land Office (GLO) Web site*– had over 2,000,000 record images (about half of total patent records) in searchable database (over 1,600,000 customer hits accessing 42,000,000 pages and generating 16,000,000 data and image requests in past 2 years).
- *Recreation.GOV* -- BLM is an active participant in this multi-agency web site that is designed to provide searchable information about recreation opportunities on Federal lands.
- *Wild Horse & Burro Adoptions* – had 350,000 visitors and 165 adoptions over the past 2 years.
- *On-line Public Room* – in pilot stage.
- *Automated Fluid Minerals Support System* (AFMSS)*, electronic commerce phase* – piloted in 1999 and implemented March, 2000,.. AFMSS serves about 3,500 petroleum operators. Approximately 50 per cent of these operators voluntarily file electronically all required applications and reports (totaling about 154,000 documents). This is expected to rise to 80 per cent by 2003 (potential annual volume: 2,500 APDs; 2,000 well completion reports; 150,000 sundry notices),
- *BLM On-line Bookstore*-- BLM is experimenting with true e-commerce by operating the "California BLM Bookstore" where members of the public can purchase California BLM materials on-line.

In addition, the BLM has accomplished other information actions:
- 25 per cent of approximately 2,800,000 property corners of BLM administrated land are currently marked with regulation monuments;

- 5 per cent of approximately 1,800,000 miles of property boundaries of BLM administrated land are currently marked with proper signs.

Long-Term Goal 5: By 2002, Achieve Capability and IT Management Maturity Stage 3 within BLM in order to obtain the best Return on Investment from our Budget Dollars and to manage Information Technology Investments effectively.

Goal Description: To achieve effective IT investment management within BLM, the General Accounting Office (GAO) has set out a straightforward, step-by-step procedure to improve agency information management. BLM will implement that procedure through Stage 3 (of 5). Achieving Stage 3 will include creation of the policy, management, and technical infrastructure necessary to manage the BLM's IT investment portfolio effectively. This will be blended with work to attain certain elements of the Software Engineering Institute's Capability Maturity Model. This depends upon having reliable cost management and investment analysis information and tools.

Strategies to achieve this goal
- *Internal Cost Management* – BLM will use the Cost Management System to measure and manage the full life-cycle costs and unit-cost of outputs for all BLM projects, work processes, and services. Full life-cycle costs are essential for understanding and making investment decisions and for analyzing return on investment alternatives of project and investment choices. This is essential to improving BLM's business effectiveness.
- *Provide Quality Customer Service*. The BLM systematically collects and assesses customer and stakeholder data on broad agency priorities, user satisfaction with specific services, and employee feedback. By using customer feedback instruments such as comment cards, focus groups, and surveys, BLM employees receive input on performance issues that require attention at all levels of the organization. This iterative learning process helps the BLM eliminate barriers to providing "best in business" customer service and achieve a high level of internal satisfaction..
- *Perform Business Process Analysis* Numerous current analytical tools are being used in this effort. One such tool is the use of detailed process flow diagrams. A process flow diagram is a method of displaying individual steps of a work process along with the information that flows in to and out of it, based on the expertise of subject matter specialists. Over the next five years, BLM will be further analyzing these work processes in greater detail and will take further actions in order to successfully transition to the Information Age.

Key factors affecting goal achievement
- Availability of time and knowledgeable staff to do the business and investment analyses that support the business needs of BLM and our customers, including priorities of those needs.
- Establishing clear roles, responsibilities, accountability, and authority for accomplishing the task.
- Achieving the goal can only be successful if given the full support of BLM management at every level of the organization.